

REMARKS

The present response is intended to be fully responsive to the rejection raised in the Office Action, and is believed to place the application in condition for allowance. Further, the Applicant does not acquiesce to any portion of the Office Action not particularly addressed. Favorable reconsideration and allowance of the application is respectfully requested.

In the Office Action, the Office noted that claims 1-4, 6-14 and 16-24 are pending, and that claims 1-45, 9-14 and 19-24 are rejected. The Office objected to claims 6-8 and 16-18.

In view of the above amendments and the following discussion, the Applicant submits that none of the claims now pending in the application are anticipated under the provisions of 35 U.S.C. §102 or obvious under the provisions of 35 U.S.C. §103. Thus, Applicant believes that all of these claims are now in condition for allowance.

I. OBJECTIONS

The Office objected to dependent claims 6-8 and 16-18 as being dependent upon a rejected base claim, but allowable if rewritten in independent form and including all of the elements of their independent claims and their intervening claims, if any. The Applicant thanks the Office for indicating allowable subject matter, but nonetheless submit, for the reasons set forth below, independent claims 1 and 11 are allowable over the prior art of record. Thus, the Applicant submits that the dependent claims 6-8 and 16-18 are allowable, and in turn, request that the objection to such claims be withdrawn.

REJECTIONS

A. Response to §102(e) Rejection of Claims 1-3

The Office again rejected claims 1-3 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,650,282 granted to Martikka ("Martikka"). The Applicant respectfully traverses this rejection.

As set forth in the present Office Action, the Office contended that *Martikka* teaches all the elements of each of the claims 1-3, including the elements directed to *(i) forming Doppler residuals using the initial position and the Doppler measurements for*

each of the plurality of satellite signals, and (ii) relating the Doppler residuals to a change in the initial position. As such, the Office contended that *Martikka* teaches the claimed elements directed to forming Doppler residuals as a function of the Doppler measurements determined for each of the plurality of satellites ("measured-Doppler measurements") and Doppler measurements predicted using at least the initial position ("predicted-Doppler measurements"). The Office also contended that *Martikka* teaches the claimed elements directed to relating these Doppler residuals (i.e., those formed as a function of the measured-Doppler and predicted-Doppler measurements) to a change in the initial position.

In support of these contentions, the Office pointed to Figure 1 and stated "*Martikka* discloses receiving preliminary Doppler measurements and estimating a preliminary position based on the receiver measurements (pseudo-distances, Figure 1) and determining an error or offset between the Doppler measurements received to form an initial position and the measurements received at a second time period (Figure 1)." The Office also stated "*Martikka* further discloses using this error/offset to update the [preliminary] position (Column 5, line 62-Column 6, line 10)."

More specifically, *Martikka* with respect to Figure 1 states:

- "In block A signals containing at least information, which makes it possible to calculate the speeds and locations of satellites, is received ... [t]he corrected and exact orbit-parameters of a satellite is in the GPS system included in the ephemeris data transmitted by the satellite" (emphasis added), *Martikka* at col. 3, lines 29-31;
- "In block B, the Doppler shift of the received signals is measured separately for each satellite" (emphasis added), *Id.*, at col. 3, lines 45-46;
- "The measured Doppler shift is utilized in block C for calculation of the relative speeds of the satellites, as seen from the receiver" (emphasis added), *Id.*, at col. 3, lines 47-48;
- "In block D, the preliminary position coordinates of the satellites is calculated based on the speeds and the locations of the satellites and on the relative speeds of the satellites" (emphasis added), *Id.*, at col. 3, lines 52-54;
- "The result of the iteration carried out in block D are the preliminary position coordinates of the receiver" (emphasis added), *Id.*, at col. 4, lines 42-43;

- "In block E, the pseudo-distances to the satellites are calculated as in prior art solutions ... [t]he pseudo-distance between a GPS receiver and a satellite is calculated based on the propagation time needed for a signal (containing a C/A code) transmitted from the satellite to reach the receiver" (emphasis added), *Id.*, at col. 4, lines 48-53;
- "In block F, the calculated pseudo-distances are corrected, if necessary ... [t]his can be done (for each satellite) such that the distance between the receiver and a satellite is calculated based on the location of the satellite and the preliminary position coordinates of the receiver" (emphasis added), *Id.*, at col. 4, lines 57-61; and
- "The calculated distance is compared to the pseudo-distance of the same satellite"" (emphasis added), *Id.*, at col. 4, lines 61-62. .

In contrast, the Applicant claim a method and apparatus that includes a combination of elements directed to *(i) forming Doppler residuals as a function of the measured-Doppler and predicted-Doppler measurements, and (ii) relating such Doppler residuals to a change in the initial position*. Specifically, the Applicant claim 1 positively recites:

"A method of locating position of a satellite signal receiver, comprising:
determining a Doppler measurement for each of a plurality of satellite signals relative to the satellite signal receiver at a first time;
computing an initial position of the satellite signal receiver using the Doppler measurement for each of the plurality of satellite signals;
forming Doppler residuals using the initial position and the Doppler measurements for each of the plurality of satellite signals;
relating the Doppler residuals to a change in the initial position; and
computing an update of the initial position" (emphasis added).

Contrary to the Office's contentions, the Applicant submit that none of the above-listed sections (and the rest) of *Martikka* discloses the claimed elements directed to Doppler residuals, whatsoever, and thus, do not describe any process or function related to and/or associated with the Doppler residuals. That is, *Martikka* does not disclose, for example, the claimed elements directed to *(i) forming Doppler residuals as a function of the measured-Doppler and predicted-Doppler measurements, and (ii) relating such Doppler residuals to a change in the initial position*. See, the present

specification at, for example, page 15, para. [0049], and at pages 6-19 starting at para. [0025].

The Applicant notes that *Martikka* merely discloses the well known processes of:

- obtaining ephemeris from GPS signals to calculate the speeds and locations of satellites (see Block A of Figure 1);
- measuring Doppler shifts from the satellite signals (see Block B of Figure 1);
- using these Doppler shifts to calculate the relative speeds of the satellites (see Block C of Figure 1);
- using the speeds, locations, and relative speeds of the satellites to calculate preliminary positional coordinates, (see Block D of Figure 1);
- calculating the pseudo-distances *based on the propagation time needed for a signal (containing a C/A code) transmitted from the satellite to reach the receiver, and not based on any Doppler measurement* (see Block E of Figure 1);
- calculating a calculated distance between the receiver and a satellite *based on the location of the satellite (Block A) and the preliminary position coordinates of the receiver (Block D)*, (see Block F of Figure 1); and
- determining an error based on *a comparison between the calculated distance and the pseudo-distance*, which, as noted above, is **not** based on any Doppler measurement (see Block F of Figure 1).

Clearly, *Martikka* does not disclose that its pseudo-distances are based on any Doppler measurement. So, contrary to the Office's assertion, the Applicant submits that the error formed from the comparison between the calculated distance and the pseudo-distance does not form a Doppler residual. That is, such error is not formed as a function of *measured-Doppler and predicted-Doppler measurements* despite the Office's contention. As such, the Applicant submit that *Martikka* does not disclose the claimed elements directed to relating the Doppler residuals (i.e., those formed as a function of the measured-Doppler and predicted-Doppler measurements) to a change in the initial position.

Since *Martikka* lacks at least one element of each of the independent claims 1 and 11, the Applicant submits that *Martikka* does not anticipate the claimed invention under 35 U.S.C. §102(e). As such, the Applicant submits that each of the independent claims 1 and 11 are patentable over *Martikka*.

Claims 2 and 3 depend, either directly or indirectly, from independent claim 1. Since the Applicant submit that *Martikka* fails to anticipate the independent claim 1 for the reasons set forth above, the Applicant further submit that *Martikka* likewise fails to anticipate each of the dependent claims 2 and 3. Thus, the Applicant submit that the claims 1-3 fully satisfy the requirements of 35 U.S.C. §102, and therefore, are allowable.

B. Response to §103(a) Rejection of Dependent Claims 4 and 9

The Office rejected dependent claims 4 and 9 under 35 U.S.C. § 103(a) as unpatentable over *Martikka* in view of U.S. Patent Application Publication 2004/0203865 filed by Krasner ("Krasner"). The Applicant respectfully traverses this rejection.

The Office stated that *Martikka* in combination with *Krasner* teaches all of the elements of the dependent claims 4 and 9. The Applicant note that the Office cited *Martikka* for the proposition that it teaches all of the elements of independent claim 1 from which the dependent claims 4 and 9 ultimately depend. The Applicant also notes that the Office only cited *Krasner* with respect to the subject matter claimed in the dependent claims 4 and 9.

The Applicant also note that the Office did not rely on *Krasner* to (and further submit that *Krasner* does not) teach the combination of elements directed to (i) forming Doppler residuals using the initial position and the Doppler measurements for each of the plurality of satellite signals, and (ii) relating such Doppler residuals to a change in initial position, as noted above. The Applicant further submit, as discussed above, that *Martikka* does not teach or suggest teach the combination of elements directed to the Doppler residuals. As such, the Applicant submits that the combination of *Martikka* and *Krasner* does not teach or suggest all the elements of the independent claim 1.

Given that each of the dependent claims 4 and 9 depend, directly or indirectly, from the independent claim 1, each necessarily includes all the elements of independent claim 1. Since the combination of *Martikka* and *Krasner* does not teach the limitations of the independent claim 1, the Applicant therefore submit that each of the dependent claims 4 and 9 is not obvious under 35 U.S.C. §103(a) over *Martikka* in view of *Krasner*.

C. Response to §103(a) Rejection of Claim 10

Claim 10 is rejected under 35 U.S.C. § 103(a) as unpatentable over *Martikka* in view of U.S. U.S. Patent No. 6,181,275 granted to Chenebault et al. ("Chenebault"). The Applicant respectfully traverses this rejection.

The Office stated that *Martikka* in combination with *Chenebault* teaches all of the elements of the dependent claim 10. The Applicant note that the Office cited *Martikka* for the proposition that it teaches all of the elements of independent claim 1 from which the dependent claim 10 ultimately depends. The Applicant also notes that the Office only cited *Chenebault* with respect to the subject matter claimed in the dependent claim 10.

The Applicant also note that the Office did not rely on *Chenebault* to (and further submit that *Chenebault* does not) teach the combination of elements directed to *(i) forming Doppler residuals using the initial position and the Doppler measurements for each of the plurality of satellite signals, and (ii) relating such Doppler residuals to a change in initial position, as noted above*. The Applicant further submit, as discussed above, that *Martikka* does not teach or suggest teach the combination of elements directed to the Doppler residuals. As such, the Applicant submits that the combination of *Martikka* and *Chenebault* does not teach or suggest all the elements of the independent claim 1.

Given that the dependent claim 10 depends, directly or indirectly, from the independent claim 1, it necessarily includes all the elements of independent claim 1. Since the combination of *Martikka* and *Chenebault* does not teach the limitations of the independent claim 1, the Applicant therefore submit that the dependent claim 10 is not obvious under 35 U.S.C. §103(a) over *Martikka* in view of *Chenebault*.

D. Response to §103(a) Rejection of Claims 11-14, 19-21 and 23-24

The Office rejected claims 11-14, 19-21 and 23-24 under 35 U.S.C. § 103(a) as unpatentable over *Martikka* in view of in view of U.S. Patent No. 6,597,311 granted to Sheynblat et al. ("Sheynblat"). The Applicant respectfully traverses this rejection.

The Office stated that *Martikka* in combination with *Sheynblat* teaches all of the elements of the claims 11-14, 19-21 and 23-24. Claim 11, which is in independent form

and from which claims 12-14, 19-21 and 23-24 ultimately depend, includes a combination of claimed elements (like claim 1) directed to (i) forming Doppler residuals using the initial position and the at least one Doppler measurement, and (ii) relating such Doppler residuals to a change in initial position, as noted above.

The Applicant note that the Office cited *Martikka* for the proposition that it teaches all of the elements of independent claim 11 (like claim 1) from which the dependent claims 12-14, 19-21 and 23-24 ultimately depend. The Applicant also note that the Office only cited *Sheynblat* with respect to the subject matter claimed in the dependent claims 12-14, 19-21 and 23-24.

The Applicant also note that the Office did not rely on *Sheynblat* to (and further submit that *Sheynblat* does not) teach the combination of elements directed to (i) forming Doppler residuals using the initial position and the Doppler measurements for each of the plurality of satellite signals, and (ii) relating such Doppler residuals to a change in initial position, as noted above. The Applicant further submit, as discussed above with respect to independent claim 1, that *Martikka* does not teach or suggest teach the combination of elements directed to the Doppler residuals. As such, the Applicant submits that the combination of *Martikka* and *Sheynblat* does not teach or suggest all the elements of the independent claim 1.

Given that each of the dependent claims 12-14, 19-21 and 23-24 depend, directly or indirectly, from the independent claim 1, each necessarily includes all the elements of independent claim 11. Since the combination of *Martikka* and *Sheynblat* does not teach the limitations of the independent claim 11, the Applicant therefore submit that each of the dependent claims 12-14, 19-21 and 23-24 is not obvious under 35 U.S.C. §103(a) over *Martikka* in view of *Sheynblat*.

E. Response to §103(a) Rejection of Claim 22

The Office rejected claim 22 under 35 U.S.C. § 103(a) as unpatentable over *Martikka* in view of in view of *Sheynblat* and in further view of *Krasner*. The Applicant respectfully traverses this rejection.

The Office stated that *Martikka* in combination with *Sheynblat* and *Krasner* teaches all of the elements of the dependent claim 22. The Applicant note that the

Office cited *Martikka* for the proposition that it teaches all of the elements of independent claim 11 from which the dependent claim 22 ultimately depends. The Applicant also notes that the Office only cited *Sheynblat* and *Krasner* with respect to the subject matter claimed in the dependent claim 22.

The Applicant also note that the Office did not rely on *Martikka* to (and further submit that *Martikka* does not) teach the combination of elements directed to (i) forming Doppler residuals using the initial position and the Doppler measurements for each of the plurality of satellite signals, and (ii) relating such Doppler residuals to a change in initial position, as noted above. The Applicant further submit, as discussed above, that *Martikka* does not teach or suggest teach the combination of elements directed to the Doppler residuals. As such, the Applicant submits that the combination of *Martikka*, *Sheynblat* and *Krasner* does not teach or suggest all the elements of the independent claim 11.

Given that the dependent claim 22 depends, directly or indirectly, from the independent claim 11, it necessarily includes all the elements of independent claim 1. Since the combination of *Martikka*, *Sheynblat* and *Krasner* does not teach the limitations of the independent claim 11, the Applicant therefore submit that the dependent claim 22 is not obvious under 35 U.S.C. §103(a) over *Martikka* in view of *Sheynblat* and in further view of *Krasner*.

CONCLUSION

In view of the foregoing, the Applicant submits that none of the claims presently in the application are anticipated under the provisions of 35 U.S.C. § 102 or obvious under the provisions of 35 U.S.C. §103. Consequently, the Applicant believes that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Office believes that any unresolved issues still exist or if, in the opinion of the Office, a telephone conference would expedite passing the present application to issue, the Office is invited to call the undersigned attorney directly at 732-978-4899 or the office of the undersigned attorney at 732-978-7100 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,
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